

Panel Mount

KS24

Solid State Relay

CE



DESCRIPTION

KS24 is a three-phase AC output panel mount type SSR (3PST-NO). It offers 4~32VDC input voltage option and two AC output voltage options 380VAC and 480VAC as well as six output current ratings from 10A to 60A for selection. The SSR includes an LED indicator to display working status and provides photoelectric isolation between input and output with dielectric strength 4000V and offers two alternative switching modes: zero-cross turn-on and random turn-on. Besides, the phase absence protection type is equipped with an additional neutral terminal to realize the corresponding function. KS24 can be used in the control of three-phase motors, heaters, etc.

PRECAUTIONS

1. The surge current value shown on this datasheet is the non-repetitive peak value of the surge current of the SSR. Normally 1/2 of the non-repetitive peak value of the surge current is considered as standard value. If the actual surge current flowing through the SSR exceeds the standard value, a semiconductor fuse is required to connect to the output terminal in series in order to prevent any damage caused to the SSR.
2. Please ensure that the SSR can withstand the transient voltage in case the output load (e.g. motors) may generate the high shock voltage.
3. The transient voltage value shown on this datasheet is the non-repetitive peak value of the transient voltage. If the transient voltage applied to the output terminal of the SSR exceeds the nominal value, a varistor is required to connect to the output terminal in parallel in order to prevent any damage caused to the SSR. And the recommended varistor voltage is 750~1000V.
4. When the phase absence or phase failure problem occurs to

FEATURES

- ◆ Photoelectric isolation
- ◆ LED status indicator
- ◆ Dielectric strength 4000V
- ◆ Zero-cross or random turn-on
- ◆ Built-in RC snubber circuit
- ◆ Removable protective cover
- ◆ Panel mount

the three-phase power supply, the phase absence protection type SSR will rapidly stop all the output and turn off the LED indicator and then run into self-lock mode till the input power supply is cut off and re-electrified. The terminals L1, L2, L3 and N must connect to the three-phase power supply, and the terminals U, V and W must connect to the three-phase load, otherwise the phase absence protection function will not be able to work.

5. Please pay special attention to the actual load current and the ambient temperature when doing the type selection. And the SSR requires proper heat sinking for heat dissipation in full load. When the ambient temperature is high, the load current must be derated. Please refer to the curve of Max. Load Current vs. Ambient Temperature for derating.
6. Tighten the SSR screw terminals properly. If the screws are loose, the SSR would be damaged by heat generated from connection. Also excessive screw mounting torque may

damage the SSR's internal components. Please refer to the recommended screw mounting torque as follows: the M4 screw mounting torque range is 0.98~1.37N·m, and the M3 screw mounting torque range is 0.58~ 0.98N·m.

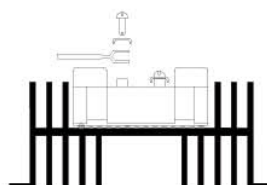
7. It is recommended to use the matched heatsink made by Keysolu. If the user needs to use the home-made heatsinks, please ensure that the temperature of the SSR base must not exceed 85°C.

8. Because all the electronic components inside the SSR have become solid after encapsulation with epoxy resin, the excessive baseplate mounting torque may cause damage to the internal components. Thus the recommended mounting torque is 0.98~1.37N·m.

9. Please do not use the SSR exceeding the limitation which is specified on this datasheet.

INSTALLATION

1. Please make sure that the heatsink surface is clean and smooth.
2. Please coat the SSR metal base with some thermal grease or a thermal pad, and firmly press the SSR against the heatsink to ensure the full adherence, and then screw the SSR to the heatsink.
3. Please wire the screw terminals and tighten the screws properly. The recommended screw mounting torque is 0.98~1.73N·m.



SELECTION GUIDE

KS24 /	D-	38	Z	10	-Y	L	P	(XXX)
Type	Control voltage	Load voltage	Switching mode	Load current	Overvoltage protection	LED indicator	Phase loss protection	Customer special code
	D: 4~32VDC	38: 380VAC 48: 480VAC	Z: Zero-cross P: Random	10: 10A 15: 15A 25: 25A 40: 40A 50: 50A 60: 60A	Y: Included Nil: Not included	L: Included	P: Included Nil: Not included	

Note: Available parts are:KS24/D-38□10-□□□, KS24/D-38□15-□□□, KS24/D-38□25-□□□, KS24/D-38□40-□□□, KS24/D-48Z40-□□□, KS24/D-48Z50-□□□, KS24/D-48Z60-□□□.

INPUT SPECIFICATIONS (Ta = 25°C)

Control voltage range	4 ~ 32VDC
Must turn-on voltage	4VDC
Must turn-off voltage	1VDC
Max. input current	35mA
Max. reverse protection voltage	-32VDC

OUTPUT SPECIFICATIONS (Ta = 25°C)

Load voltage range	D-38: 48 ~ 440VAC	
	D-48: 48 ~ 530VAC	
Max. load current	D-38Z10: 10A	
	D-38Z15: 15A	
	D-38Z25: 25A	
	D-□□Z40: 40A	
	D-48Z50: 50A	
	D-48Z60: 60A	
Max. transient voltage	D-38: 800Vpk	
	D-48: 1200Vpk	
Frequency range	47 ~ 63Hz	
Max. surge current (10ms)	D-38Z10: 100Apk	
	D-38Z15: 150Apk	
	D-38Z25: 250Apk	
	D-□□Z40: 400Apk	
	D-48Z50: 500Apk	
	D-48Z60: 600Apk	
Max. I ² t for fusing (10ms)	D-38Z10: 50A ² s	
	D-38Z15: 112A ² s	
	D-38Z25: 312A ² s	
	D-□□Z40: 800A ² s	
	D-48Z50: 1250A ² s	
	D-48Z60: 1800A ² s	
Max. on-state voltage drop	1.7Vr.m.s.	
Min. load current	100mA	
Max. off-state leakage current	10mA	
Min. off-state dv/dt	D-38: 200V/μs	
	D-48: 500V/μs	
Max. turn-on time	Zero-cross	1/2 Cycle + 1ms
	Random	1ms
Max. turn-off time	1/2 Cycle + 1ms	
Min. power factor	0.5	

GENERAL SPECIFICATIONS (Ta = 25°C)

Dielectric strength (input/output)	4000VAC, 50~60Hz, 1min					
Insulation resistance	1000MΩ (500VDC)					
Max. capacitance (input / output)	10pF					
operating temperature	-30 ~ 80°C					
Storage temperature	-30 ~ 100°C					
Ambient humidity	45% ~ 85% RH					
Termination	Screw					
Installation method	Panel mount					
Unit weight	Approx .315g					

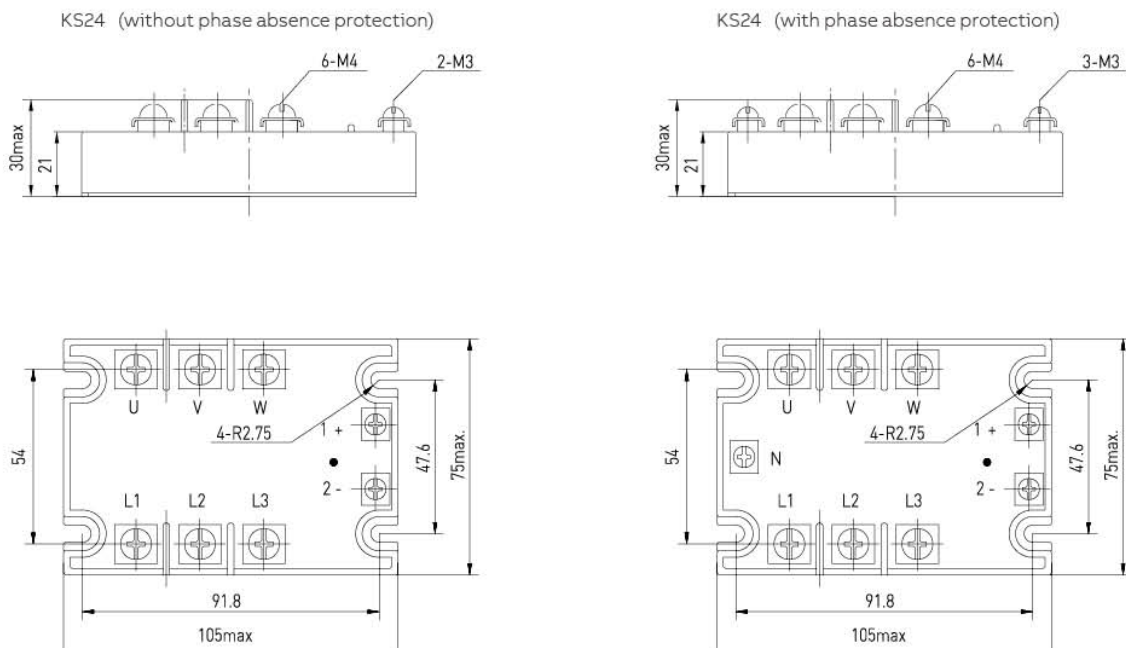
APPLICATION SPECIFICATIONS (Ta = 25°C)

Relay load current	10A	15A	25A	40A	50A	60A
Motor power	0.75kW	1.1kW	1.5kW	3kW	4kW	5kW
Heatsink part number	HF92B-150A			HF92B-150C		
Cooling fan air flow	115CFM					

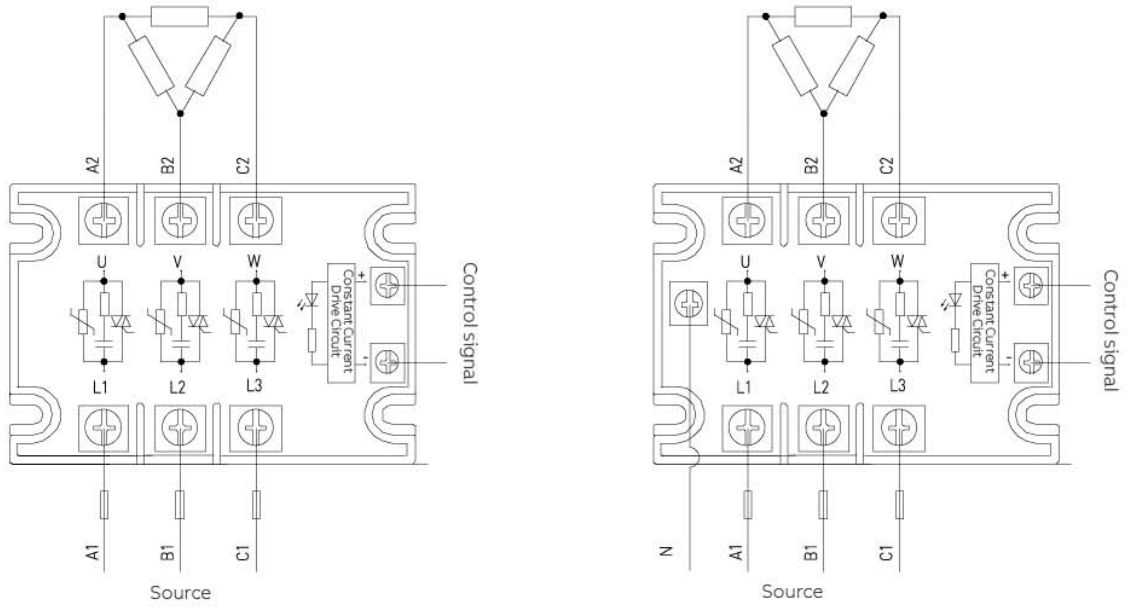
OUTLINE DIMENSIONS, WIRING DIAGRAM

Unit: mm

Outline Dimensions



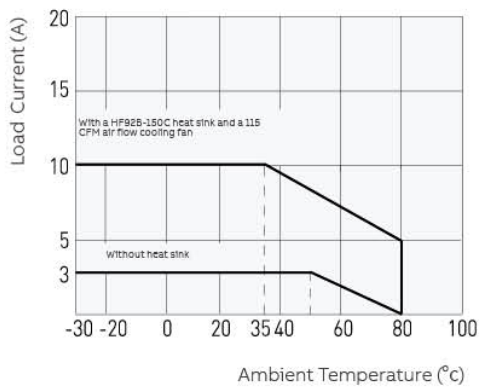
Wiring Diagram



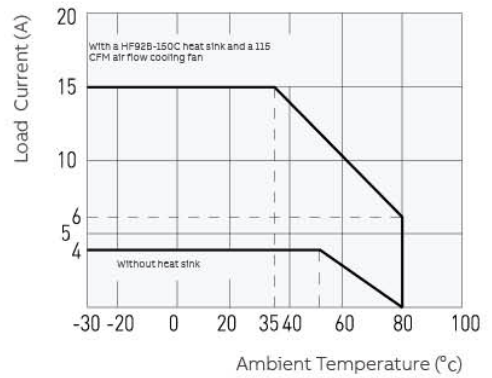
Notes: F1,F2,F3 should be semiconductor fuses

CHARACTERISTIC CURVES

Max. Load Current vs. Ambient Temperature (10A)



Max. Load Current vs. Ambient Temperature (15A)



CHARACTERISTIC CURVES

